Of mulberry trees and silkworms

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Mulberry fruits are a good summer memory for me — munching on mulberries when I happen to come across a tree laden with ripe fruit. The fruits are sweet, and the ground under the trees typically sticky with ones that have already fallen.

Unfortunately, mulberries ripen quickly and don’t store well fresh, which is why we don’t find them sold in local stores. However, in countries like Afghanistan, sacks of dried mulberries are sold in marketplaces, and eaten as snacks.

Two species of mulberry (Morus) grow wild in Delaware. Oddly, the species that is much more common is the non-native white mulberry (Morus alba), whereas the native red mulberry (Morus rubra) is encountered far less often. Both are small to medium-sized trees with similar-looking leaves that may be unlobed, or one- to three-lobed, on the same tree. Both species also have similar fruits, which at maturity are dark purple in red mulberry, and range in color from white, pink, purple to almost black in white mulberry.

The fruits of the red mulberry are said to be tastier. Although these two species can be difficult to distinguish, red mulberry leaves are hairy beneath, whereas white mulberry leaves are hairless beneath (except there may be sparse hairs on the veins). In addition, another species, the black mulberry (Morus nigra), is cultivated in some places for its edible fruits.

The story of white mulberry’s introduction to North America involves silk. Silk comes from the cocoons of silkworms, which eat mulberry leaves. When I look at the cocoon of a silkworm, I am amazed that anyone ever thought of unwinding the silk that makes up the cocoon, and then weaving cloth from it. But this did happen, several thousand years ago in China, where the silkworm was domesticated.

The silkworm doesn’t exist in the wild, and depends entirely on humans. The silkworm, the larva of the silmoth, produces a cocoon consisting of a silken thread 1,000 to 3,000 feet long. One pound of silk requires 2,000 to 3,000 cocoons. In an attempt to establish a silk industry in North America, white mulberries and silkworms were introduced before the American Revolution by the British, and again in great numbers in the 1830’s. The silk industry failed here, but the introduced white mulberry trees thrived, to the point where they are now widespread and invasive in some parts of our continent.

The non-native white mulberry is on the invasive species watchlist in Delaware, and it sprouts easily in unmowed yards, fields, and woods. Native to China, it was first recorded growing wild in Delaware in 1836.

The native red mulberry is listed as an uncommon species in Delaware, meaning that it has only 21-50 known populations in the state, and might become of conservation concern in the future if more populations become extirpated. It grows in rich woods and edges. A good source of information about the plants of Delaware is the Flora of Delaware Online Database http://www.wra.udel.edu/de-flora. White mulberry is hybridizing with red mulberry, and thus threatening the genetic viability of our native species.

Another member of the mulberry family, paper-mulberry (Broussonetia) is native to China and Japan, and has become established in the eastern U.S. This tree is also invasive, and its leaves provide food for the useful silkworm. Just like red mulberry, the paper-mulberry is a native of China, and is a naturalized species here. Its leaves are also edible, and its wood has been used for paper production.

On the campus of Delaware State University, the Claude E. Phillips Herbarium has a collection of mulberries. Called the Moraceae Herbarium, it is the largest collection of its kind on the east coast. This herbarium contains 12,000 specimens, and the mulberry is one of the most abundant specimens in the herbarium.

White mulberry trees (Morus alba) were introduced to North America in a failed attempt to establish a silk industry here. Silkworms (larvae of the silkworm) eat mulberry leaves. The inset photo shows silkworm cocoons, from which silk is derived.

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subject of a “Garden Tales” article in December. That tree is native to another part of the U.S. but has naturalized here. The Moraceae Herbarium has a collection of white mulberry, with 12,000 specimens in the collection. This herbarium is the largest collection of its kind on the east coast.

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